REMARKS

In order to emphasize the patentable distinctions of applicants' invention over the prior art, claims 1, 5, and 8 have been amended to require that the bandpass filter, inductor, and method, respectively, employ a core consisting essentially of an Fe-base amorphous metal alloy ribbon. Claim 4 has been amended, for the sake of clarity, to depend from claim 1, as amended. As originally filed, claim 4 depended from claim 3, which, in turn, depended from claim 1. The amendment of claim 1 effected by applicants' amendment dated June 3, 2003, incorporated the limitations of former claims 2 and 3, which were cancelled. Accordingly, amended claim 4 now properly depends from amended claim 1. Support for the amendment is found in the specification, e.g. at page 4, lines 20 – 21; page 9, lines 16 – 17; and Fig. 12. Consequently, no new matter has been added.

Applicants' invention, as recited by present claims 1, 4, 5, 7, 8, and 11, provides a bandpass filter including an inductor with a magnetic core consisting essentially of an Fe-base amorphous metal alloy ribbon. The core has a constant permeability over a wide frequency range, e.g. a range of about 1 to 1000 kHz. Preferably the permeability is constant over a field strength range of approximately -15 to +15 Oe.

The use of a magnetic core consisting essentially of an Fe-base amorphous metal alloy ribbon, and which has a constant permeability over a range of 1 to 1000 kHz, provides a number of advantages in constructing bandpass filters. As set forth in detail in applicants' specification, e.g. at page 5, lines 10-11, the resonant frequency of a filter circuit comprising an inductance L and a capacitance C is proportional to the quantity $1/(LC)^{1/2}$. The inductance of an inductor employing a magnetic core is known in the art to be generally proportional, in turn, to the effective permeability

of the magnetic core. As a result, an inductor using a constant permeability core has a constant inductance, making it far easier to analyze and employ than inductors having more complicated, frequency-dependent magnetic characteristics. The latter inductors are also likely to produce unpredictable phase shift effects on signals passing through the inductor and its associated filter circuitry. Moreover, the power loss of the core of the present inductor is low. As a result, any filter circuit incorporating the inductor is more efficient and has a higher quality factor "Q" than circuits employing more lossy devices. A high Q is beneficial in a filter, giving it a resonance that is narrower in frequency.

Previous workers seeking cores having a substantially constant permeability have resorted to powder (dust) based cores, wherein a powder of magnetic material is held, e.g. by a non-metallic binder, in a desired geometrical form. While suitable preparation of such cores does provide a relatively flat curve of permeability versus applied field, they frequently are found to have other drawbacks, notably including the effects of the stress used to compact them into a shape and incorporate a suitable binder that is required to give the core sufficient mechanical robustness for handling and use. The present core, on the other hand, is prepared without the costly and difficult step of preparing powder and compacting and binding it in the desired shape. Instead, amorphous metal material in strip or ribbon form is directly wound into cores and suitably heat treated to provide the desired magnetic properties without the additional processing required for a powder core.

The Examiner has objected to claim 4 as being informal because of its dependence on now-cancelled claim 3. As discussed above, claim 4 has been amended to depend from amended claim 1. In view of this amendment to claim 4, it is submitted that the Examiner's objection is thereby cured.

Claims 1, 4 – 5, 7 – 8, and 11 were rejected under 35 USC 102(e) as being anticipated by US Patent 6,594,157 to Yoshida et al., which discloses a magnetic powder core comprising a molded article of a mixture of a glassy alloy powder and an insulating material.

Applicant respectfully submits that the rejection of claims 1, 4 – 5, 7 – 8, and 11 under 35 USC 102(e) does not comply with the requirements for a rejection set forth in 37 CFR 1.104 (c)(2). The Yoshida et al. patent is seventy-eight (78) pages long. Accordingly, it qualifies as a "complex reference," as that term is used in 37 CFR 1.104 (c)(2). The Examiner is therefore obliged to designate the part of the Yoshida et al.. disclosure relied on, to thereby make the present rejection "as nearly as practicable." In the present instance, the Office Action provides no indication whatsoever concerning the particular disclosure or suggestion within the considerable ambit of the Yoshida et al. patent on which the Examiner has relied. However, as best understood by applicants, the Examiner is believed to be referring to disclosure at col. 6, lines 19 – 32 of Yoshida et al.

Significantly, the Yoshida et al. patent discloses a magnetic powder core, i.e. a core in which magnetic powder is combined with a non-magnetic substance and formed into a desired core shape. Applicants point specifically to the description of related art in col. 1, lines 20 – 28, wherein the patentees describe cores exhibiting constant permeability up to the high frequency region as having been proposed, the cores being either ferrite closed magnetic circuit cores, ferrite gapped cores, and amorphous alloy tape-wound cores <u>provided with gaps</u>. Conspicuously absent from this enumeration is an amorphous alloy tape-wound core lacking a discrete gap. Applicants maintain that the cores disclosed or suggested by Yoshida et al. as having constant permeability are all powder-based cores.

By way of contrast, applicants delineate a bandpass filter and an inductor comprising cores formed of amorphous metal alloy ribbon, not powder. Significantly, applicants' claims 1, 5, and 8

all explicitly call for a permeability that is substantially constant over a frequency range of about 1 to 1000 kHz, whereas Yoshida et al. discloses cores having a permeability that falls significantly with frequency, e.g. between 100 kHz and 1000 kHz (see Fig. 12). Applicants' core also lacks the mixture of insulating material that is required to be combined with magnetic powder in the cores of Yoshida et al.

Applicants therefore submit respectfully that Yoshida et al. does not disclose or suggest all the elements of applicants' claims 1, 4, 5, 7, 8, and 11, arranged as recited therein, as would be required for a proper rejection under 35 USC 102(e).

Accordingly, reconsideration of the rejection of claims 1, 4, 5, 7, 8, and 11 under 35 USC 102(e) as being anticipated by Yoshida et al. is respectfully requested.

In view of the amendments to claims 1, 4, 5, and 8, and the remarks set forth above, it is submitted that the present application is in allowable condition. Reconsideration of the rejection of present claims 1, 4, 5, 7, 8, and 11, and their allowance, are earnestly solicited.

Respectfully submitted,

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By ____________

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